AMENDMENT

Please amend the above-identified application as follows:

Amendments to the Claims:

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

CLAIMS

What is claimed is:

1. (Currently Amended) A method for navigating an Unmanned Aerial Vehicle (UAV), the method comprising:

receiving in a remote control device a user's selection of a GUI map pixel that represents a waypoint for UAV navigation, the pixel having a location on the GUI;

mapping the pixel's location on the GUI to Earth coordinates of the waypoint;

receiving downlink telemetry, including a starting position from a GPS receiver on the UAV, from the UAV through a socket on the remote control device;

calculating a heading in dependence upon the starting position, the coordinates of the waypoint, and a navigation algorithm;

identifying flight control instructions for flying the UAV on the heading; and

transmitting uplink telemetry, including the flight control instructions, through the socket to the UAV.

2. (Original) The method of claim 1 wherein receiving downlink telemetry further comprises:

listening on the socket for downlink data;

storing downlink data in computer memory; and

exposing the stored downlink data through an API to a navigation application.

3. (Original) The method of claim 2 wherein the downlink telemetry further comprises flight control instructions.

4. (Original) The method of claim 1 wherein transmitting uplink telemetry further comprises:

monitoring computer memory for uplink data from a navigation application; and

when uplink data is presented, sending the uplink data through the socket to the UAV.

5. (Original) The method of claim 1 further comprising:

receiving user selections of a multiplicity of GUI map pixels representing waypoints, each pixel having a location on the GUI;

mapping each pixel location to Earth coordinates of a waypoint;

assigning one or more UAV instructions to each waypoint;

storing the coordinates of the waypoints and UAV instructions in computer memory on the remote control device;

flying the UAV to each waypoint in accordance with one or more navigation algorithms; and

operating the UAV at each waypoint in accordance with the UAV instructions for each waypoint, including:

identifying flight control instructions in dependence upon the UAV instructions for each waypoint; and

transmitting the flight control instructions in the uplink telemetry through the socket from the remote control device to the UAV.

6. (Original) The method of claim 1 wherein mapping the pixel's location on the GUI to Earth coordinates of the waypoint further comprises:

mapping pixel boundaries of the GUI map to Earth coordinates;

identifying a range of latitude and a range of longitude represented by each pixel; and

locating a region on the surface of the Earth in dependence upon the boundaries, the ranges, and the location of the pixel on the GUI map.

7. (Original) The method of claim 6 wherein locating a region on the surface of the Earth in dependence upon the boundaries, the ranges, and the location of the pixel on the GUI map further comprises:

multiplying the range of longitude represented by each pixel by a column number of the selected pixel, yielding a first multiplicand;

multiplying the range of longitude represented by each pixel by 0.5, yielding a second multiplicand;

adding the first and second multiplicands to an origin longitude of the GUI map;

multiplying the range of latitude represented by each pixel by a row number of the selected pixel, yielding a third multiplicand;

multiplying the range of latitude represented by each pixel by 0.5, yielding a fourth multiplicand; and

adding the third and fourth multiplicands to an origin latitude of the GUI map.

8. (Currently Amended) A method for navigating an Unmanned Aerial Vehicle (UAV), the method comprising:

receiving in a remote control device a user's selection of a GUI map pixel that represents a waypoint for UAV navigation, the pixel having a location on the GUI;

mapping the pixel's location on the GUI to Earth coordinates of the waypoint;

transmitting uplink telemetry, including the coordinates of the waypoint, to the UAV through a socket on the remote control device;

receiving downlink telemetry, include a starting position from a GPS receiver, from the UAV through the socket; and

piloting the UAV, under control of a navigation computer on the UAV, from the starting position to the waypoint in accordance with a navigation algorithm.

9. (Original) The method of claim 8 wherein transmitting uplink telemetry further comprises:

monitoring computer memory for uplink data from a navigation application; and

when uplink data is presented, sending the uplink data through the socket to the UAV.

10. (Original) The method of claim 8 wherein receiving downlink telemetry further comprises:

listening on the socket for downlink data;

storing downlink data in computer memory; and

exposing the stored downlink data through an API to a navigation application.

11. (Original) The method of claim 10 wherein the downlink telemetry further comprises Earth coordinates of waypoints.

12. (Original) The method of claim 10 wherein the downlink telemetry further comprises one or more UAV instructions.

13. (Original) The method of claim 8 further comprising:

receiving user selections of a multiplicity of GUI map pixels representing waypoints, each pixel having a location on the GUI;

mapping each pixel location to Earth coordinates of a waypoint;

assigning one or more UAV instructions to each waypoint;

transmitting the coordinates of the waypoints and the UAV instructions in the uplink telemetry through the socket to the UAV;

storing the coordinates of the waypoints and UAV instructions in computer memory on the UAV;

piloting the UAV to each waypoint in accordance with one or more navigation algorithms; and

operating the UAV at each waypoint in accordance with the UAV instructions for each waypoint.

14. (Original) The method of claim 8 wherein mapping the pixel's location on the GUI to Earth coordinates of the waypoint further comprises:

mapping pixel boundaries of the GUI map to Earth coordinates;

identifying a range of latitude and a range of longitude represented by each pixel; and

locating a region on the surface of the Earth in dependence upon the boundaries, the ranges, and the location of the pixel on the GUI map.

15. (Original) The method of claim 14 wherein locating a region on the surface of the Earth in dependence upon the boundaries, the ranges, and the location of the pixel on the GUI map further comprises:

multiplying the range of longitude represented by each pixel by a column number of the selected pixel, yielding a first multiplicand;

multiplying the range of longitude represented by each pixel by 0.5, yielding a second multiplicand;

adding the first and second multiplicands to an origin longitude of the GUI map;

multiplying the range of latitude represented by each pixel by a row number of the selected pixel, yielding a third multiplicand;

multiplying the range of latitude represented by each pixel by 0.5, yielding a fourth multiplicand; and

adding the third and fourth multiplicands to an origin latitude of the GUI map.

16. (Currently Amended) A system for navigating an Unmanned Aerial Vehicle (UAV), the system comprising:

means for receiving in a remote control device a user's selection of a GUI map pixel that represents a waypoint for UAV navigation, the pixel having a location on the GUI;

means for mapping the pixel's location on the GUI to Earth coordinates of the waypoint;

means for receiving downlink telemetry, including a starting position from a GPS receiver on the UAV, from the UAV through a socket on the remote control device;

means for calculating a heading in dependence upon the starting position, the coordinates of the waypoint, and a navigation algorithm;

means for identifying flight control instructions for flying the UAV on the heading; and

means for transmitting uplink telemetry, including the flight control instructions, through the socket to the UAV.

17. (Original) The system of claim 16 wherein means for receiving downlink telemetry further comprises:

means for listening on the socket for downlink data;

means for storing downlink data in computer memory; and

means for exposing the stored downlink data through an API to a navigation application.

18. (Original) The system of claim 17 wherein the downlink telemetry further comprises flight control instructions.

19. (Original) The system of claim 16 wherein transmitting uplink telemetry further comprises:

means for monitoring computer memory for uplink data from a navigation application; and

means for sending the uplink data through the socket to the UAV when uplink data is presented.

20. (Original) The system of claim 16 further comprising:

means for receiving user selections of a multiplicity of GUI map pixels representing waypoints, each pixel having a location on the GUI;

means for mapping each pixel location to Earth coordinates of a waypoint;

means for assigning one or more UAV instructions to each waypoint;

means for storing the coordinates of the waypoints and UAV instructions in computer memory on the remote control device;

means for flying the UAV to each waypoint in accordance with one or more navigation algorithms; and

means for operating the UAV at each waypoint in accordance with the UAV instructions for each waypoint, including:

means for identifying flight control instructions in dependence upon the UAV instructions for each waypoint; and

means for transmitting the flight control instructions in the uplink telemetry through the socket from the remote control device to the UAV.

21. (Original) The system of claim 16 wherein means for mapping the pixel's location on the GUI to Earth coordinates of the waypoint further comprises:

means for mapping pixel boundaries of the GUI map to Earth coordinates;

means for identifying a range of latitude and a range of longitude represented by each pixel; and

means for locating a region on the surface of the Earth in dependence upon the boundaries, the ranges, and the location of the pixel on the GUI map.

22. (Original) The system of claim 21 wherein means for locating a region on the surface of the Earth in dependence upon the boundaries, the ranges, and the location of the pixel on the GUI map further comprises:

means for multiplying the range of longitude represented by each pixel by a column number of the selected pixel, yielding a first multiplicand;

means for multiplying the range of longitude represented by each pixel by 0.5, yielding a second multiplicand;

means for adding the first and second multiplicands to an origin longitude of the GUI map;

means for multiplying the range of latitude represented by each pixel by a row number of the selected pixel, yielding a third multiplicand;

means for multiplying the range of latitude represented by each pixel by 0.5, yielding a fourth multiplicand; and

means for adding the third and fourth multiplicands to an origin latitude of the GUI map.

23. (Currently Amended) A system for navigating an Unmanned Aerial Vehicle (UAV), the system comprising:

means for receiving in a remote control device a user's selection of a GUI map pixel that represents a waypoint for UAV navigation, the pixel having a location on the GUI;

means for mapping the pixel's location on the GUI to Earth coordinates of the waypoint;

means for transmitting uplink telemetry, including the coordinates of the waypoint, to the UAV through a socket on the remote control device;

means for receiving downlink telemetry, include a starting position from a GPS receiver, from the UAV through the socket; and

means for piloting the UAV, under control of a navigation computer on the UAV, from the starting position to the waypoint in accordance with a navigation algorithm.

24. (Original) The system of claim 23 wherein means for transmitting uplink telemetry further comprises:

means for monitoring computer memory for uplink data from a navigation application; and

means for sending the uplink data through the socket to the UAV when uplink data is presented.

25. (Original) The system of claim 23 wherein means for receiving downlink telemetry further comprises:

means for listening on the socket for downlink data;

means for storing downlink data in computer memory; and

means for exposing the stored downlink data through an API to a navigation application.

26. (Original) The system of claim 25 wherein the downlink telemetry further comprises Earth coordinates of waypoints.

27. (Original) The system of claim 25 wherein the downlink telemetry further comprises one or more UAV instructions.

28. (Original) The system of claim 23 further comprising:

means for receiving user selections of a multiplicity of GUI map pixels representing waypoints, each pixel having a location on the GUI;

means for mapping each pixel location to Earth coordinates of a waypoint;

means for assigning one or more UAV instructions to each waypoint;

means for transmitting the coordinates of the waypoints and the UAV instructions in the uplink telemetry through the socket to the UAV;

means for storing the coordinates of the waypoints and UAV instructions in computer memory on the UAV;

means for piloting the UAV to each waypoint in accordance with one or more navigation algorithms; and

means for operating the UAV at each waypoint in accordance with the UAV instructions for each waypoint.

29. (Original) The system of claim 23 wherein means for mapping the pixel's location on the GUI to Earth coordinates of the waypoint further comprises:

means for mapping pixel boundaries of the GUI map to Earth coordinates;

means for identifying a range of latitude and a range of longitude represented by each pixel; and

means for locating a region on the surface of the Earth in dependence upon the boundaries, the ranges, and the location of the pixel on the GUI map.

30. (Original) The system of claim 29 wherein means for locating a region on the surface of the Earth in dependence upon the boundaries, the ranges, and the location of the pixel on the GUI map further comprises:

means for multiplying the range of longitude represented by each pixel by a column number of the selected pixel, yielding a first multiplicand;

means for multiplying the range of longitude represented by each pixel by 0.5, yielding a second multiplicand;

means for adding the first and second multiplicands to an origin longitude of the GUI map;

means for multiplying the range of latitude represented by each pixel by a row number of the selected pixel, yielding a third multiplicand;

means for multiplying the range of latitude represented by each pixel by 0.5, yielding a fourth multiplicand; and

means for adding the third and fourth multiplicands to an origin latitude of the GUI map.

31. (Currently Amended) A computer program product for navigating an Unmanned Aerial Vehicle (UAV), the computer program product comprising:

means, recorded on the recording medium, for receiving in a remote control device a user's selection of a GUI map pixel that represents a waypoint for UAV navigation, the pixel having a location on the GUI;

means, recorded on the recording medium, for mapping the pixel's location on the GUI to Earth coordinates of the waypoint;

means, recorded on the recording medium, for receiving downlink telemetry, including a starting position from a GPS receiver on the UAV, from the UAV through a socket on the remote control device;

means, recorded on the recording medium, for calculating a heading in dependence upon the starting position, the coordinates of the waypoint, and a navigation algorithm;

means, recorded on the recording medium, for identifying flight control instructions for flying the UAV on the heading; and

means, recorded on the recording medium, for transmitting uplink telemetry, including the flight control instructions, through the socket to the UAV.

32. (Original) The computer program product of claim 31 wherein means, recorded on the recording medium, for receiving downlink telemetry further comprises:

means, recorded on the recording medium, for listening on the socket for downlink data;

means, recorded on the recording medium, for storing downlink data in computer memory; and

means, recorded on the recording medium, for exposing the stored downlink data through an API to a navigation application.

33. (Original) The computer program product of claim 32 wherein the downlink telemetry further comprises flight control instructions.

34. (Original) The computer program product of claim 31 wherein transmitting uplink telemetry further comprises:

means, recorded on the recording medium, for monitoring computer memory for uplink data from a navigation application; and

means, recorded on the recording medium, for sending the uplink data through the socket to the UAV when uplink data is presented.

35. (Original) The computer program product of claim 31 further comprising:

means, recorded on the recording medium, for receiving user selections of a multiplicity of GUI map pixels representing waypoints, each pixel having a location on the GUI;

means, recorded on the recording medium, for mapping each pixel location to Earth coordinates of a waypoint;

means, recorded on the recording medium, for assigning one or more UAV instructions to each waypoint;

means, recorded on the recording medium, for storing the coordinates of the waypoints and UAV instructions in computer memory on the remote control device;

means, recorded on the recording medium, for flying the UAV to each waypoint in accordance with one or more navigation algorithms; and

means, recorded on the recording medium, for operating the UAV at each waypoint in accordance with the UAV instructions for each waypoint, including:

means, recorded on the recording medium, for identifying flight control instructions in dependence upon the UAV instructions for each waypoint; and

means, recorded on the recording medium, for transmitting the flight control instructions in the uplink telemetry through the socket from the remote control device to the UAV.

36. (Original) The computer program product of claim 31 wherein means, recorded on the recording medium, for mapping the pixel's location on the GUI to Earth coordinates of the waypoint further comprises:

means, recorded on the recording medium, for mapping pixel boundaries of the GUI map to Earth coordinates;

means, recorded on the recording medium, for identifying a range of latitude and a range of longitude represented by each pixel; and

means, recorded on the recording medium, for locating a region on the surface of the Earth in dependence upon the boundaries, the ranges, and the location of the pixel on the GUI map.

37. (Original) The computer program product of claim 36 wherein means, recorded on the recording medium, for locating a region on the surface of the Earth in dependence upon the boundaries, the ranges, and the location of the pixel on the GUI map further comprises:

means, recorded on the recording medium, for multiplying the range of longitude represented by each pixel by a column number of the selected pixel, yielding a first multiplicand;

means, recorded on the recording medium, for multiplying the range of longitude represented by each pixel by 0.5, yielding a second multiplicand;

means, recorded on the recording medium, for adding the first and second multiplicands to an origin longitude of the GUI map;

means, recorded on the recording medium, for multiplying the range of latitude represented by each pixel by a row number of the selected pixel, yielding a third multiplicand;

means, recorded on the recording medium, for multiplying the range of latitude represented by each pixel by 0.5, yielding a fourth multiplicand; and

means, recorded on the recording medium, for adding the third and fourth multiplicands to an origin latitude of the GUI map.

38. (Currently Amended) A computer program product for navigating an Unmanned Aerial Vehicle (UAV), the computer program product comprising:

means, recorded on the recording medium, for receiving in a remote control device a user's selection of a GUI map pixel that represents a waypoint for UAV navigation, the pixel having a location on the GUI;

means, recorded on the recording medium, for mapping the pixel's location on the GUI to Earth coordinates of the waypoint;

means, recorded on the recording medium, for transmitting uplink telemetry, including the coordinates of the waypoint, to the UAV through a socket on the remote control device;

means, recorded on the recording medium, for receiving downlink telemetry, include a starting position from a GPS receiver, from the UAV through the socket; and

means, recorded on the recording medium, for piloting the UAV, under control of a navigation computer on the UAV, from the starting position to the waypoint in accordance with a navigation algorithm.

39. (Original) The computer program product of claim 38 wherein means, recorded on the recording medium, for transmitting uplink telemetry further comprises:

means, recorded on the recording medium, for monitoring computer memory for uplink data from a navigation application; and

means, recorded on the recording medium, for sending the uplink data through the socket to the UAV when uplink data is presented.

40. (Original) The computer program product of claim 38 wherein means, recorded on the recording medium, for receiving downlink telemetry further comprises:

means, recorded on the recording medium, for listening on the socket for downlink data;

means, recorded on the recording medium, for storing downlink data in computer memory; and

means, recorded on the recording medium, for exposing the stored downlink data through an API to a navigation application.

41. (Original) The computer program product of claim 40 wherein the downlink telemetry further comprises Earth coordinates of waypoints.

42. (Original) The computer program product of claim 40 wherein the downlink telemetry further comprises one or more UAV instructions.

43. (Original) The computer program product of claim 38 further comprising:

means, recorded on the recording medium, for receiving user selections of a multiplicity of GUI map pixels representing waypoints, each pixel having a location on the GUI;

means, recorded on the recording medium, for mapping each pixel location to Earth coordinates of a waypoint;

means, recorded on the recording medium, for assigning one or more UAV instructions to each waypoint;

means, recorded on the recording medium, for transmitting the coordinates of the waypoints and the UAV instructions in the uplink telemetry through the socket to the UAV;

means, recorded on the recording medium, for storing the coordinates of the waypoints and UAV instructions in computer memory on the UAV;

means, recorded on the recording medium, for piloting the UAV to each waypoint in accordance with one or more navigation algorithms; and

means, recorded on the recording medium, for operating the UAV at each waypoint in accordance with the UAV instructions for each waypoint.

44. (Original) The computer program product of claim 38 wherein means, recorded on the recording medium, for mapping the pixel's location on the GUI to Earth coordinates of the waypoint further comprises:

means, recorded on the recording medium, for mapping pixel boundaries of the GUI map to Earth coordinates;

means, recorded on the recording medium, for identifying a range of latitude and a range of longitude represented by each pixel; and

means, recorded on the recording medium, for locating a region on the surface of the Earth in dependence upon the boundaries, the ranges, and the location of the pixel on the GUI map.

45. (Original) The computer program product of claim 44 wherein means, recorded on the recording medium, for locating a region on the surface of the Earth in dependence upon the boundaries, the ranges, and the location of the pixel on the GUI map further comprises:

means, recorded on the recording medium, for multiplying the range of longitude represented by each pixel by a column number of the selected pixel, yielding a first multiplicand;

means, recorded on the recording medium, for multiplying the range of longitude represented by each pixel by 0.5, yielding a second multiplicand;

means, recorded on the recording medium, for adding the first and second multiplicands to an origin longitude of the GUI map;

means, recorded on the recording medium, for multiplying the range of latitude represented by each pixel by a row number of the selected pixel, yielding a third multiplicand;

means, recorded on the recording medium, for multiplying the range of latitude represented by each pixel by 0.5, yielding a fourth multiplicand; and

means, recorded on the recording medium, for adding the third and fourth multiplicands to an origin latitude of the GUI map.